

# (12) UK Patent Application (19) GB (11) 2 215 211 (13) A

(43) Date of A publication 20.09.1989

(21) Application No 8901280.1

(22) Date of filing 20.01.1989

(30) Priority data  
(31) 8802263

(32) 02.02.1988

(33) GB

(51) INT CL<sup>4</sup>  
A61F 5/44

(52) UK CL (Edition J)  
A5R RCE

(56) Documents cited  
GB 2092896 A GB 2084879 A EP 0271241 A1

(58) Field of search  
UK CL (Edition J) A5R RCE  
INT CL<sup>4</sup> A61F

(71) Applicant  
Smiths Industries Public Limited Company  
(Incorporated in the United Kingdom)  
765 Finchley Road, London, NW11 8DS,  
United Kingdom

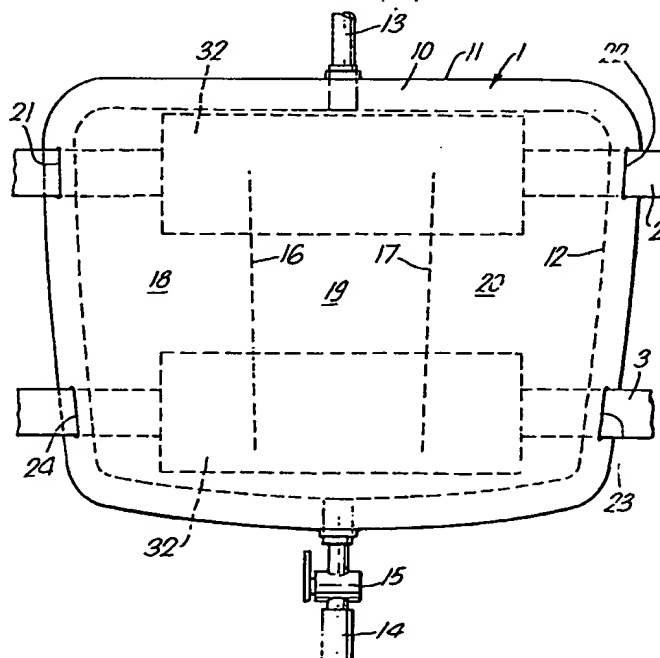
(72) Inventors  
Peter James Briggs  
Kenneth John Brooks

(74) Agent and/or Address for Service  
J M Filnt  
765 Finchley Road, London, NW11 8DS,  
United Kingdom

## (54) Urine leg bag assembly

(57) A urine leg bag (1) is made of two flexible sheets (10, 11) welded together at their edges and along two vertical lines (16, 17) to divide the bag into three vertical chambers (18 to 20). Two pairs of mounting apertures (21, 22, 23 and 24) receive respective straps (2 and 3) by which the bag is secured around the leg (4). The strap (2 and 3) pass behind the bag (1) between the bag and the leg where they have portions (32) of increased width that are stiffened by folding back at their ends (33 and 34). A part (35) of each strap (2 and 3) is elastic and they have press-to-close loop and hook fabric fasteners. The portions (32) of greater width limit the extend by which the edges of the bag can slide together along the strap as the bag fills with urine, thereby reducing bunching.

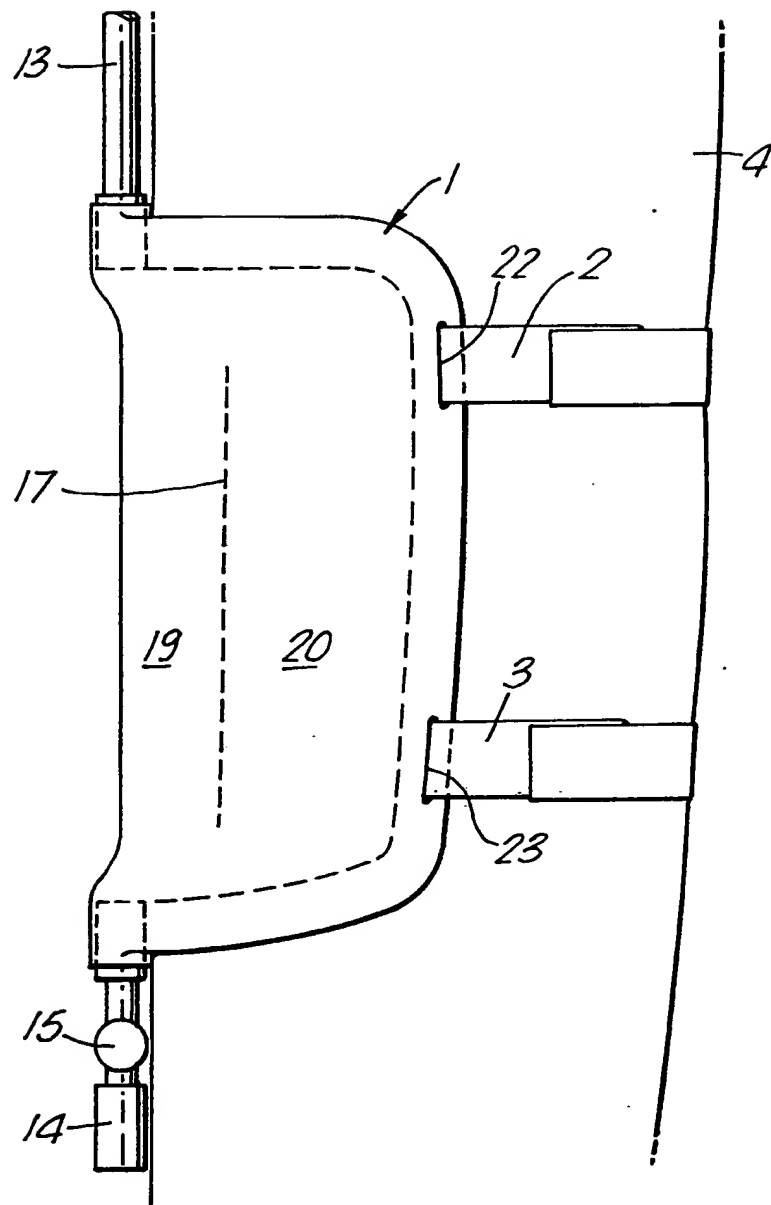
Fig.1.



GB 2 215 211 A



Fig. 2.



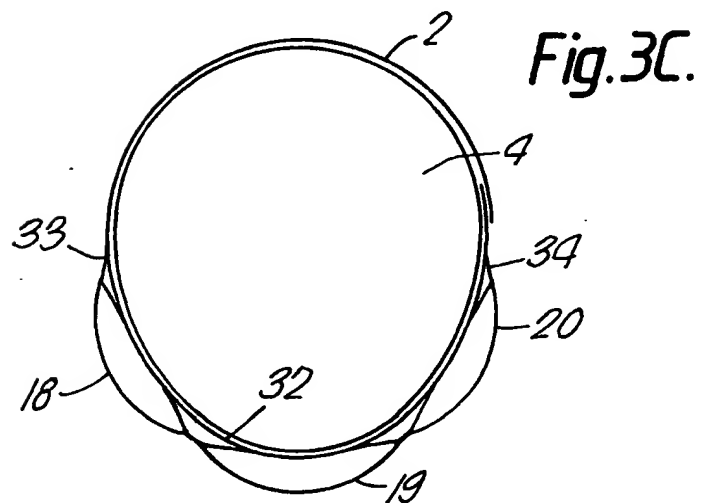
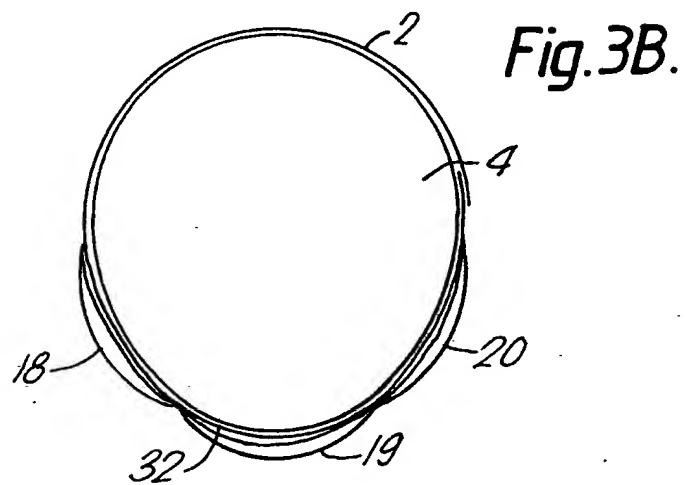
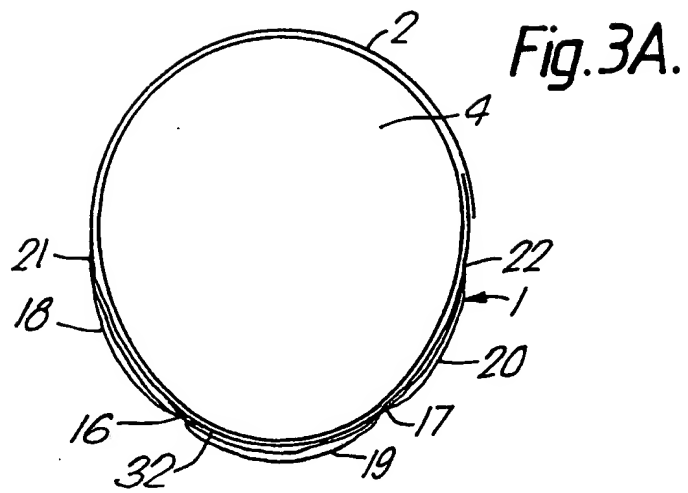
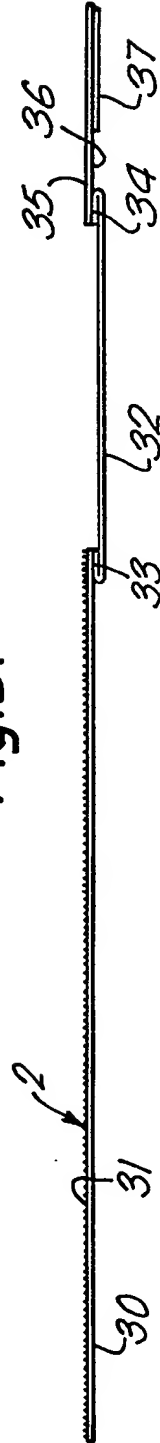


Fig. 4.



Fig. 5.



URINE BAG ASSEMBLIES AND STRAPS FOR SUCH ASSEMBLIES

This invention relates to urine bag assemblies and straps for such assemblies.

The invention is more particularly concerned with leg bags, that is, bags strapped to the user's leg to receive discharged urine.

Urine leg bags are used by incontinent men and women to receive discharged urine via a catheter or other collection tube. The bags are commonly made of a flexible plastics material and have an outlet at their lower end which is provided with a tap by which the bag can be periodically emptied. The bag is strapped to the patient's leg in an inconspicuous position, beneath the wearer's clothes. Men generally strap the bag around their calf, whereas women wearing skirts strap the bag about their thigh where it will remain concealed.

The capacity of such bags used by adults is typically 500ml, which is sufficient to contain the contents of a full bladder. The bags are generally rectangular in shape, with the longer side extending along the leg, such as described, for example in US 4,421,509; US 3,897,785 and US 2,883,985. This, however, means that the bag is typically about 260mm long and, with the addition of the outlet, this total length of the bag can be 310mm. The length of the bag can make it difficult to conceal, and the outlet may in some cases hang below the user's trouser

leg or skirt.

There is, therefore, an advantage to be gained in making the bag shorter with a consequent width increase to maintain the desired capacity. Such a bag is described in GB 2 153 231 which is divided into five vertical chambers arranged side-by-side and intercommunicating with each other. As such bags fill with urine there is a tendency for their width to reduce. If the bag is fixed to straps at its edge, this can cause the straps to tighten about the leg as the bag fills which may be undesirable and uncomfortable in some circumstances.

It is an object of the present invention to provide an improved urine leg bag assembly and strap for such an assembly.

According to one aspect of the present invention there is provided a urine leg bag assembly comprising a flexible urine bag and strap means adapted to encompass the leg, the bag having mounting apertures therein towards opposite side edges of the bag, the strap means passing through said apertures and having a portion thereof intermediate said apertures that lies behind the bag across its width, between the bag and the leg, a part at least of said portion being adapted to limit the extent by which said mounting apertures can slide towards one another along the strap means, as the bag fills with urine, and thereby reduce bunching of the bag assembly.

Preferably, the said part at least of said portion is of greater width than that of the mounting apertures and said part lies intermediate the aperture behind the bag so as to limit the extent by which the mounting apertures can slide towards one another along the strap means. The said part of greater width may have opposite ends folded back on itself to give greater stiffness to said part. A part at least of the strap means may be elastic. The strap means may be provided with cooperating looped and hooked press-to-close fabric fasteners by which the strap means is fastened around the leg. The assembly preferably includes two of said strap means, each said strap means passing through respective mounting apertures towards opposite side edges of the bag. The bag may have a plurality of vertical chambers.

According to another aspect of the present invention there is provided strap means for a urine leg bag assembly according to the above one aspect of the present invention.



A urine leg bag assembly including two straps, in accordance with the present invention, will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a front elevation of the assembly;

Figure 2 is a side elevation showing the assembly in use;

Figures 3A are plan views of the assembly showing to 3C the bag at different stages of filling;

Figure 4 is a plan view of a strap of the assembly; and

Figure 5 is a side elevation of the strap of Figure 4.

With reference first to Figures 1 and 2, the leg bag assembly comprises a leg bag 1 and two straps 2 and 3 used to secure the bag to the leg 4 of the user.

The bag 1 is formed from two generally rectangular sheets 10 and 11 of flexible plastics material, such as PVC, welded together about their edge 12. The rear sheet 11 is preferably backed by an absorbent fabric sheet (not shown) so as to make contact with the user's skin more comfortable. An inlet tube 13 is joined to the centre of the upper edge of the bag and, in use, is connected to a urine catheter that receives urine discharged by the wearer. An outlet tube 14 and tap 15 is similarly joined to the centre of the lower edge of the bag, the tap normally being closed but being openable to allow drainage of urine collected in the bag when necessary.

The bag 1 is about 260 mm wide and 190mm long giving it a capacity of about 500ml. Two vertical weld lines 16 and 17 are disposed equally about the centre of the bag, and extend a part way only along the length of the bag, terminating about 20mm from the welded edge 12 at the upper and lower ends of the bag. In this way, the bag is divided into three vertical chambers 18, 19 and 20 which intercommunicate with one another at their upper and lower ends.

Mounting apertures in the form of four slots 21 to 24 are formed within the welded edge 12 of the bag. The slots 21 to 24 are of rectangular shape being about 20mm long and 3mm wide. Two slots 21 and 24 are located above one another at the upper and lower ends of the left hand edge; the other two slots 22 and 23 are located opposite the first pair of slots in the right hand edge of the bag. The slots 21 and 22 receive one strap 2; the slots 24 and 23 receive the other strap 3.

The two straps 2 and 3 are identical, one of the straps 2 being shown in greater detail in Figures 4 and 5. The strap 2 comprises, at the left-hand of the drawings, a flexible strip 30 about 370mm long by 19mm wide with an inwardly-presented surface 31 of a press-to-close, looped fabric fastener such as Velcro<sup>(Registered Trade Mark)</sup>. The right end of the strip 30 is stitched to cotton webbing 32 that is 50mm wide and 150mm long. The webbing 32 is folded back on itself at opposite ends 33 and 34 to strengthen it. At its right-hand end 34, the webbing 32 is stitched to a strip 35 of an elastic material that is 19mm wide and 89mm long. On the outwardly-presented surface 36 of the elastic strip, at its right-hand end there is attached a 50mm long strip 37 of a press-to-close hook fastener material, such as Velcro, of the kind that can be secured to the looped surface 31 at the left-hand end of the strap. The overall length of the strap 2 is about 600mm.

When assembled, the central, wider part of the straps 2 and 3 provided by the webbing 32 lies behind the bag 1, that is between the bag and the leg 4. The narrower strips 30 and 35 pass through the slots 21 and 22, and 24 and 23 respectively. Because the length of the webbing 32 is less than the spacing between the slots 21 and 22 or 24 and 23, across the width of the bag, the ends of the webbing will be spaced from the slots by about 30mm at each end, when the bag is empty. Whilst the width of the strips 30 and 35 is such as to enable them to pass freely through the slots 21 to 24, it can be seen that the width of the webbing 32 prevents it being pulled through the slots.

With reference now also to Figures 3A to 3C, in use, the bag is secured on the user's leg 4 by wrapping the left-hand end of the straps 2 and 3 around the leg and pressing the inwardly-presented looped fastener surface 31 firmly on top of the outwardly-presented hooked fastener material 37. As urine enters the bag 1 via the inlet tube 13 it flows to the lower end of the bag, filling each of the chambers 18 to 20 from the bottom. As the chambers 18 to 20 fill, they assume a more circular section as shown in Figures 3B and 3C, thereby causing a reduction in the width of the bag 1. Because the end portions of the straps 2 and 3 formed by the strips 30 and 35 are free to slide through the slots 21 and 24, and 22 and 23 respectively, the reduction in width

of the bag is accommodated by the side edges of the bag 1 sliding towards one another along the straps. This movement, however, is limited by the central wider portion of the straps 2 and 3 formed by the webbing 32. The folded-back ends 33 and 34 of the webbing provide additional stiffness to the webbing, preventing it being pulled through the slots 21 to 24. When the bag has filled to the extent that the ends 33 and 34 of the webbing 32 contact the slots 21 to 24, the front and back walls of the chambers 18 to 20 became more convex. Further urine entering the bag 1 causes an increase in the level of the contents rather than the cross-sectional area of the bag.

Without any limitation to the extent that the sides of the bag can be displaced together, there would be the tendency for the bag to bunch up, with the weight of the central chamber hanging away from the leg. This would make the full assembly cumbersome and thereby make it more conspicuous under the wearer's clothing. With the arrangement of the present invention, the bag lies flat against the leg when empty, being free to fill without tightening the straps about the wearer's leg. The central section 19 is maintained in contact with the wearer's leg, ensuring that the bag remains as inconspicuous as possible.

It will be appreciated that the strap could have a different shape whilst still fulfilling the requirement of allowing the width of the bag to be reduced to only a limited extent.

CLAIMS

1. A urine leg bag assembly comprises a flexible urine bag and strap means adapted to encompass the leg, wherein the bag has mounting apertures therein towards opposite side edges of the bag, the strap means passing through said apertures and having a portion thereof intermediate said apertures that lies behind the bag across its width, between the bag and the leg, a part at least of said portion being adapted to limit the extent by which said mounting apertures can slide towards one another along the strap means, as the bag fills with urine, and thereby reduce bunching of the bag assembly.
2. A urine leg bag assembly according to Claim 1, wherein the said part at least of said portion is of greater width than that of the mounting apertures and said part lies intermediate the apertures behind the bag so as to limit the extent by which the mounting apertures can slide towards one another along the strap means.

3. A urine leg bag assembly according to Claim 2, wherein the said part of greater width has opposite ends folded back on itself to give greater stiffness to said part.
4. A urine leg bag assembly according to any one of the preceding claims, wherein a part at least of the strap means is elastic.
5. A urine leg bag assembly according to any one of the preceding claims, wherein the strap means is provided with cooperating looped and hooked press-to-close fabric fasteners by which the strap means is fastened around the leg.
6. A urine leg bag assembly according to any one of the preceding claims, wherein the assembly includes two of said strap means, and wherein each said strap means passes through respective mounting apertures towards opposite side edges of the bag.

7. A urine leg bag assembly according to any one of the preceding claims, wherein the bag has a plurality of vertical chambers.
8. A urine leg bag assembly substantially as hereinbefore described with reference to the accompanying drawings.
9. Strap means for a urine leg bag assembly according to any one of the preceding claims.
10. Strap means substantially as hereinbefore described with reference to the accompanying drawings.
11. Any novel feature or combination of features as hereinbefore described.